APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,672	02/27/2002	Jered Donald Aasheim	MS1-1026US	6395

22801	7590	03/03/2005

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EXAMINER
PATEL, HETUL B

ART UNIT	PAPER NUMBER
2186	

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2002*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-44 are presented for examination.

Claim Objections

2.   Claim 1 is objected to because of the following informalities:

As per claim 1, it should be stated as "One or more <u>computer-readable media</u>

comprising ..." instead of "One or more <u>computer-readable readable media</u> comprising

...".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3.   Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

the written description requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in

the relevant art that the inventor(s), at the time the application was filed, had possession

of the claimed invention. The claim 8 of this application states that "... the flash medium

logic configured to perform error code correction ...". Although the specification of this

application states that the flash memory medium is used to store the error code

correction data (ECC), the specification does not describe about how the flash medium

logic performs error code correction.

Claims 15, 30 and 38 are rejected based on the same rationale as the rejection

of claim 8.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter which the applicant regards as his invention.

4.   Claims 6-8 recites the limitation "the flash memory medium" in them. There is

insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public
use or on sale in this country, more than one year prior to the date of application for patent in the United
States.

5.   Claims 1, 5-7, 9-11, 16-17, 22-25, 29, 31-33, 37, 39 and 40-44 are rejected under

35 U.S.C. 102(b) as being anticipated by Ban (USPN: 5,799,168).

As per claim 1, Ban teaches that one or more computer-readable media (the

combination of flash array and standardized flash controller in Fig. 1) comprising a flash

memory driver (the standardized flash controller in Fig. 1) that is executable by a

computer to interface between a file system and one or more flash memory media, the

flash memory driver comprising: flash abstraction logic that is interface/controller,

between the CPU and the flash memory, and invokable by the file system to manage

flash memory operations without regard to the type of the one or more flash memory

media (e.g. see Col. 2, lines 36-38); and flash media logic (a simple discrete logic or

interface) configured to interact with different types of the flash memory media (any

flash chip); wherein the flash abstraction logic invokes the flash media logic to perform

memory operations (generic commands) that are potentially performed in different ways

depending on the type of the flash memory media (e.g. see the abstract, Col. 2, lines

36-48 and claim 2).

As per claims 5 and 6, Ban teaches the claimed invention as described above

and furthermore, Ban teaches the flash memory driver, wherein one of the flash

memory operations includes mapping status information associated with physical

sectors of the flash memory medium for use by the file system, i.e. translating

commands from/to physical sectors of the flash memory medium to/from commands for

used in the file system (CPU) (e.g. see Col. 5, lines 29-37).

As per claim 7, Ban teaches the claimed invention as described above and

furthermore, Ban teaches the flash memory driver, wherein the flash medium logic

(simple discrete logic) is a user programmable to read, write and erase data to and from

the flash memory medium (e.g. see Col. 3, lines 19-24).

As per claim 17, Ban teaches the claimed invention as described above and

furthermore, Ban teaches that the flash abstraction logic that is interface/controller,

between the CPU and the flash memory, passes specific commands associated with

certain types of flash memory media directly to the flash medium logic (a simple discrete

logic or interface) for translation and further execution (e.g. see Col. 2, lines 36-48 and

Fig. 1).

As per claims 23 and 29, Ban teaches a processing device that uses a flash

memory medium for storage of data, comprising: a file system (the flash file system),

configured to control data storage for the processing device (e.g. see Col. 2, lines 17-

23); flash media logic (a simple discrete logic or interface which comprises the

command register) configured to perform physical sector operations to a flash memory

medium based on physical sector commands, wherein the flash medium logic

comprises a set of programmable entry points that can be implemented by a user to

interface with the type of flash memory medium selected (e.g. see Col. 3, lines 15-24);

and flash abstraction logic that is interface/controller, between the CPU and the flash

memory, configured to maintain flash memory requirements, which are common to a

plurality of different flash memory media, that are necessary to operate the flash

memory medium (e.g. see Col. 2, lines 36-48 and Fig. 1).

As per claim 40, Ban teaches the claimed invention as described above and

furthermore, Ban teaches that the method further comprises receiving read and write

commands from a file system that is inherently embedded in the controller taught by

Ban (e.g. see Col. 1, lines 35-39 and Col. 2, lines 40-44).

As per claim 41, Ban teaches the claimed invention as described above and

furthermore, Ban teaches that one or more computer-readable media (the combination

of flash array and standardized flash controller in Fig. 1) comprising computer-

executable instructions (commands stored in the command register) that, when executed, perform the method as taught by Ban (e.g. see Col. 3, lines 15-24 and Fig. 1).

Claims 9, 18, 25 and 42-43 are rejected based on the same rationale as the rejection of claim 1.

Claims 11, 31 and 37 are rejected based on the same rationale as the rejection of claim 6.

Claims 10, 22, 32, 39 and 44 are rejected based on the same rationale as the rejection of claim 7.

Claim 16 is rejected based on the same rationale as the rejection of claims 1 and 7.

Claim 24 is rejected based on the same rationale as the rejection of claims 17.

Claim 33 is rejected based on the same rationale as the rejection of claims 16 and 17.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 2, 12, 20, 27 and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Ban in view of Bruce et al. (USPN: 6,000,006) hereinafter, Bruce.

As per claim 2, Ban teaches the claimed invention as described above.
However, Ban failed to teach that one of the flash memory operations includes
performing wear-leveling operations associated with the flash memory medium. Bruce,
on the other hand, teaches that the benefits of using a unified re-mapping and wear-
leveling table overcome the disadvantages of the larger granularity of block re-
mapping. As flash-memory sizes increase, the relative loss from block rather than
page re-mapping decreases (e.g. see Col. 10, lines 7-15). Accordingly, it would have
been obvious to one of ordinary skill in the art at the time of the current invention was
made to implement the teachings of Bruce in the flash memory driver taught by Ban to
recognize the benefits as stated above.

Claims 12, 20, 27 and 35 are rejected based on the same rationale as the
rejection of claim 2.

7.   Claims 3-4, 13-14, 19, 21, 26, 28, 34 and 36 are rejected under 35 U.S.C. 103(a)
as being unpatentable over Ban in view of Martwick (USPN: 6,493,807).

As per claims 3 and 4, Ban teaches the claimed invention as described above.
However, Ban failed to teach that one of the flash memory operations includes
maintaining data integrity of the flash memory medium and handling recovery of data
associated with the flash memory medium after a power-failure. Martwick, on the other
hand, teaches the method for updating the flash blocks so the data integrity gets
maintained and the data can be recovered upon a power failure (e.g. see Col. 3, lines
37-39). Accordingly, it would have been obvious to one of ordinary skill in the art at the

time of the current invention was made to implement the method of updating the flash

blocks as taught by Martwick in the Ban's flash memory driver to recognize the benefits

as stated above.

Claims 13-14, 19, 21, 26, 28, 34 and 36 are rejected based on the same

rationale as the rejection of claims 3 and 4.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hetul Patel whose telephone number is 571-272-4184.

The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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published applications may be obtained from either Private PAIR or Public PAIR.

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Business Center (EBC) at 866-217-9197 (toll-free).

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MATTHEW D. ANDERSON
PRIMARY EXAMINER